1. Solve the modeling problem below, if possible.

   A new virus is spreading throughout the world. There were initially 4 many cases reported, but the number of confirmed cases has doubled every 5 days. How long will it be until there are at least 1000 confirmed cases?

   A. About 17 days

   B. About 28 days

   C. About 15 days

   D. About 40 days

   E. There is not enough information to solve the problem.

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2. For the information provided below, construct a linear model that describes her total budget, B, as a function of the number of months, x she is at UF.

   Aubrey is a college student going into her first year at UF. She will receive Bright Futures, which covers her tuition plus a $400 educational expense each year. Before college, Aubrey saved up $8000. She knows she will need to pay $900 in rent a month, $80 for food a week, and $48 in other weekly expenses.

   A. $B(x) = 400x + 8000$

   B. $B(x) = 8400 - 1028x$

   C. $B(x) = 8000x + 400$

   D. $B(x) = 8400 - 1412x$

   E. None of the above.

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3. For the information provided below, construct a linear model that describes her total budget, B, as a function of the number of months, x she is at UF.

   Aubrey is a college student going into her first year at UF. She will

receive Bright Futures, which covers her tuition plus a \$800 educational expense each year. Before college, Aubrey saved up \$8000. She knows she will need to pay \$1200 in rent a month, \$80 for food a week, and \$56 in other weekly expenses.

A. $B(x) = 8800 - 1336x$

B. $B(x) = 8800 - 1744x$

C. $B(x) = 800x + 8000$

D. $B(x) = 8000x + 800$

E. None of the above.

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4. Solve the modeling problem below, if possible.

In CHM2045L, Brittany created a 20 liter 25 percent solution of chemical χ using two different solution percentages of chemical χ. When she went to write her lab report, she realized she forgot to write the amount of each solution she used! If she remembers she used 11 percent and 29 percent solutions, what was the amount she used of the 29 percent solution?

A. $4.44 liters$

B. $15.56 liters$

C. $10.00 liters$

D. $5.61 liters$

E. There is not enough information to solve the problem.

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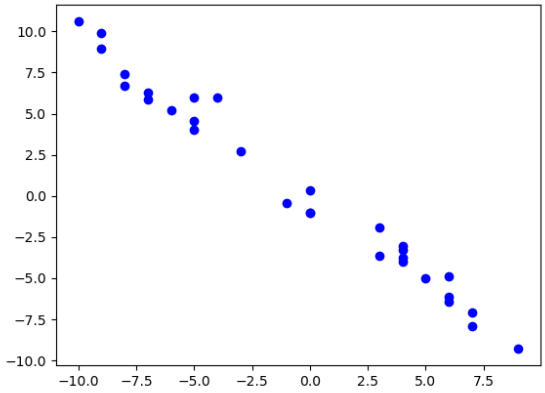
5. Determine the appropriate model for the graph of points below.



A. Logarithmic model

B. Exponential model

C. Linear model

D. Non-linear Power model

E. None of the above

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6. For the scenario below, use the model for the volume of a cylinder as $V = \pi r^2 h$.

   Pringles wants to add 27 percent more chips to their cylinder cans and minimize the design change of their cans. They've decided that the best way to minimize the design change is to increase the radius and height by the same percentage. What should this increase be?

   A. About 13 percent

   B. About 8 percent

   C. About 14 percent

   D. About 3 percent

   E. None of the above

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7. For the scenario below, use the model for the volume of a cylinder as $V = \pi r^2 h$.

Pringles wants to add 24 percent more chips to their cylinder cans and minimize the design change of their cans. They've decided that the best way to minimize the design change is to increase the radius and height by the same percentage. What should this increase be?

A. About 3 percent

B. About 11 percent

C. About 12 percent

D. About 7 percent

E. None of the above

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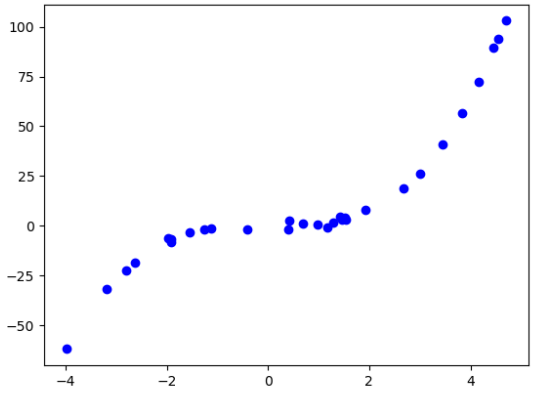
8. Determine the appropriate model for the graph of points below.



A. Logarithmic model

B. Linear model

C. Non-linear Power model

D. Exponential model

E. None of the above

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9. Solve the modeling problem below, if possible.

A new virus is spreading throughout the world. There were initially 6

many cases reported, but the number of confirmed cases has quadrupled every 4 days. How long will it be until there are at least 1000000 confirmed cases?

A. About 49 days

B. About 35 days

C. About 20 days

D. About 18 days

E. There is not enough information to solve the problem.

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10. Solve the modeling problem below, if possible.

In CHM2045L, Brittany created a 24 liter 38 percent solution of chemical χ using two different solution percentages of chemical χ. When she went to write her lab report, she realized she forgot to write the amount of each solution she used! If she remembers she used 14 percent and 42 percent solutions, what was the amount she used of the 14 percent solution?

A. $12.00 liters$

B. $20.57 liters$

C. $10.45 liters$

D. $3.43 liters$

E. There is not enough information to solve the problem.
